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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

BELL, WILLIAM P

ART UNIT

PAPER NUMBER

1745

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/577,303	Applicant(s) LO PRESTI ET AL.	
	Examiner WILLIAM P. BELL	Art Unit 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 March 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36-70 is/are pending in the application.
- 4a) Of the above claim(s) 44-68 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 36-43, 69 and 70 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/20/2010</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 36, 38-40, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto (Japanese Patent Publication No. JP-05031724, already of record) in view of Oku (U.S. Patent Application Publication No. US 2006/0096696) and Sato (Japanese Patent Publication No. JP-57-087939), and further in view of Faure-Bondat (European Patent Application Publication No. EP-0209453, already of record). Regarding claim 36, Hashimoto teaches an expandable bladder for tire vulcanizing apparatuses (see [0001]) having a toroidal conformation (one of skill in the art recognizes that such bladders are toroidal in shape), comprising at least one first layer of a first elastomer material and one second layer of a second elastomer material different from the first elastomer material (see [0007]); wherein the second layer is at a position radially external to the first layer (see [0007]). Hashimoto teaches that the inner layer is preferably butyl rubber (see [0009]) and the outer layer is preferably silicone rubber (see [0011]). Hashimoto is silent regarding the construction of the bladder and the interface profile between the two elastomer materials. Oku teaches a method of making a multi-layer rubber composite (see [0013]) wherein two different rubber

Art Unit: 1745

materials are co-extruded as a continuous strip that is wrapped around a rotating toroidal support such that the strip forms circumferential coils in a side-by-side relationship wherein the layers are mutually coupled along their longitudinal extension (see [0015]-[0017]). As taught by Oku, the interface between the two layers is undulating (see Figure 2). Oku does not explicitly teach the manufacture of an expandable bladder for tire vulcanizing apparatuses. Sato teaches the manufacture of an expandable bladder for tire vulcanizing apparatuses comprising extruding a strip of rubber material around a rotating toroidal support wherein the strip forms circumferential coils in a side-by-side relationship wherein the coils are mutually coupled along their lengths (see Abstract and Figures 1-5). It would have been obvious to one of ordinary skill in the art at the time of the invention to have produce the multi-layer bladder taught by Hashimoto by extruding a two-layer strip of the rubber materials onto a rotating toroidal support such that the strip forms circumferential coils in a side-by-side relationship wherein the layers are mutually coupled along their longitudinal extension, as taught by Oku, for the benefit of providing sufficient durability of the multi-layer structure (see Oku, [0089] and Sato, Abstract).

Oku suggests significant interaction between the layers of the structure (see [0017]-[0025]), but does not explicitly teach the formation of mechanical engagement elements between the two layers. Faure-Bondat teaches that incompatible rubber materials may be joined by a coextrusion process in which mechanical engagement elements are formed at the interface between the incompatible rubbers (see Abstract and Figures 3-5 and 7). It would have been obvious to one of ordinary skill in the art at

Art Unit: 1745

the time of the invention to have modified the bladder taught by Hashimoto, as modified by Oku and Sato, by forming mechanical engagement elements between the two layers of elastomer (i.e., at the interface profile) for the benefit of increasing the strength of the bond formed between two rubber materials without the use of an adhesive (see Faure-Bondat, Abstract).

Regarding claims 38 and 39, Hashimoto is silent regarding an undulating interface profile. Oku teaches an interface profile between two rubber layers that has a wave height greater than one tenth of the wave pitch (see Figure 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to have produce the multi-layer bladder taught by Hashimoto by extruding a two-layer strip of the rubber materials onto a rotating toroidal support such that the strip forms circumferential coils in a side-by-side relationship wherein the layers are mutually coupled along their longitudinal extension, as taught by Oku, for the benefit of providing sufficient durability of the multi-layer structure (see Oku, [0089] and Sato, Abstract).

Regarding claim 40, Hashimoto, as modified by Oku and Sato, does not teach mechanical engagement elements having portions of mutual undercut constraint. Faure-Bondat teaches the formation of mechanical engagements having portions of mutual undercut constraints at the interface between incompatible materials (see Figures 3-5 and 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the bladder taught by Hashimoto, as modified by

Art Unit: 1745

Oku and Sato, by forming mechanical engagement elements between the two layers of elastomer (i.e., at the interface profile) having mutual undercut portions for the benefit of increasing the strength of the bond formed between two rubber materials without the use of an adhesive (see Faure-Bondat, Abstract).

Regarding claim 43, Hashimoto teaches a bladder wherein the first elastomer material comprises a polymeric butyl base (see [0009]) and the second elastomer material comprises a polymeric silicone base (see [0011]).

3. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Hashimoto (JP-05031724), Oku (US 2006/0096696), Sato (JP-57087939), and Faure-Bondat (EP-0209453) as applied to claim 36 above, and further in view of applicant's admission of prior art. Hashimoto, as modified by Oku, Sato, and Faure-Bondat, is silent regarding the structure of the edges of the bladder. However, applicant admits that it is known to provide bladders for vulcanization of tires with at least one circumferential edge carrying anchoring tailpieces (see page 2, lines 4-7 of the instant application). It would have been obvious to one of ordinary skill in the art at the time of the invention to have provided the bladder taught by Hashimoto with anchoring tailpieces on the circumferential edges for the benefit of clamping the bladder in the vulcanization mold, as is well known in the art.

Art Unit: 1745

4. Claims 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Hashimoto (JP-05031724), Oku (US 2006/0096696), Sato (JP-57087939), and Faure-Bondat (EP-0209453) as applied to claim 36 above, and further in view of Mori (U.S. Patent Application Publication No. US 2003/0122284). Hashimoto, as modified by Oku, Sato, and Faure-Bondat, is silent regarding additional layers of elastomer material in the bladder structure. Mori suggests that tire vulcanization bladders may be fabricated having more than two layers of elastomer material in the structure, so long as the total thickness does not become excessive (see [0033]). It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the bladder taught by Hashimoto with additional layers of elastomer, both radially inward and outward, because Mori suggests that such bladders may be made with many layers of elastomer.

5. Claims 69 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto (JP-05031724), Oku (US 2006/0096696), Sato (JP-57087939), and Faure-Bondat (EP-0209453) in view of Cantarutti (U.S. Patent No. 3,464,090, already of record) and Heindel (U.S. Patent No. 5,939,002). Regarding claim 69, Hashimoto teaches an expandable bladder for tire vulcanizing apparatuses (see [0001]) having a toroidal conformation (one of skill in the art recognizes that such bladders are toroidal in shape), comprising at least one first layer of a first elastomer material and one second layer of a second elastomer material different from the first elastomer material (see [0007]); wherein the second layer is at a position radially external to the first layer (see

Art Unit: 1745

[0007]). Hashimoto teaches that the inner layer is preferably butyl rubber (see [0009]) and the outer layer is preferably silicone rubber (see [0011]). Hashimoto is silent regarding the construction of the bladder and the interface profile between the two elastomer materials. Oku teaches a method of making a multi-layer rubber composite (see [0013]) wherein two different rubber materials are co-extruded as a continuous strip that is wrapped around a rotating toroidal support such that the strip forms circumferential coils in a side-by-side relationship wherein the layers are mutually coupled along their longitudinal extension (see [0015]-[0017]). As taught by Oku, the interface between the two layers is undulating (see Figure 2). Oku does not explicitly teach the manufacture of an expandable bladder for tire vulcanizing apparatuses. Sato teaches the manufacture of an expandable bladder for tire vulcanizing apparatuses comprising extruding a strip of rubber material around a rotating toroidal support wherein the strip forms circumferential coils in a side-by-side relationship wherein the coils are mutually coupled along their lengths (see Abstract and Figures 1-5). It would have been obvious to one of ordinary skill in the art at the time of the invention to have produce the multi-layer bladder taught by Hashimoto by extruding a two-layer strip of the rubber materials onto a rotating toroidal support such that the strip forms circumferential coils in a side-by-side relationship wherein the layers are mutually coupled along their longitudinal extension, as taught by Oku, for the benefit of providing sufficient durability of the multi-layer structure (see Oku, [0089] and Sato, Abstract).

Oku suggests significant interaction between the layers of the structure (see [0017]-[0025]), but does not explicitly teach the formation of mechanical engagement

Art Unit: 1745

elements between the two layers. Faure-Bondat teaches that incompatible rubber materials may be joined by a coextrusion process in which mechanical engagement elements are formed at the interface between the incompatible rubbers (see Abstract and Figures 3-5 and 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the bladder taught by Hashimoto, as modified by Oku and Sato, by forming mechanical engagement elements between the two layers of elastomer (i.e., at the interface profile) for the benefit of increasing the strength of the bond formed between two rubber materials without the use of an adhesive (see Faure-Bondat, Abstract).

Hashimoto, as modified by Oku, Sato, and Faure-Bondat, is silent regarding the structure of the vulcanization mold and associated devices. Cantarutti teaches a vulcanization apparatus for tires of vehicle wheels comprising a mold having a plurality of cheeks and sectors adapted to define, by molding, a tread pattern on the tread band of the tire (see column 1, lines 53-56 and Figures 1 and 2); devices to supply heat to a green tire to be vulcanized to enable cross-linking of the green tire, the devices being operative associated with the mold (see column 3, lines 57-59); and an expandable bladder associated with the mold to exert pressure from the inside to the outside on the green tire, bringing the green tire into contact with the cheeks and section of the mold during the molding step (see column 1, lines 48-51). It would have been obvious to one of ordinary skill in the art at the time of the invention to have combined the bladder taught by Hashimoto, Oku, Sato, and Faure-Bondat with the tire molding apparatus taught by Cantarutti for the benefit of producing vehicle tires. While Cantarutti does not

Art Unit: 1745

teach that the sidewall molding surfaces form a plurality of graphic elements on the sidewall of the tire, such is well known in the art, as exemplified by Heindel (see Figure 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to have provided the sidewall molding surfaces with graphic element forming surfaces for the benefit of providing commonly used indicia such as corporate logos and other tire identification information.

Regarding claim 70, Hashimoto, as modified by Oku, Sato, and Faure-Bondat, is silent regarding the structure of the edges of the bladder. Cantarutti teaches a tire bladder than comprises at least one tailpiece formed at a circumferential edge of the bladder (see Figure 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to have provided the bladder taught by Hashimoto with anchoring tailpieces on the circumferential edges for the benefit of clamping the bladder in the vulcanization mold, as is well known in the art.

Response to Arguments

6. Applicant's arguments with respect to claims 36-43, 69, and 70 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

Art Unit: 1745

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM P. BELL whose telephone number is (571)270-7067. The examiner can normally be reached on Monday - Thursday, 7:00 am - 4:30 pm; Alternating Fridays, 7:00 am - 3:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip Tucker can be reached on 571-272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1745

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/WILLIAM P BELL/
Examiner, Art Unit 1745

/Philip C Tucker/

Supervisory Patent Examiner, Art Unit 1745